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Implementation of POPBL seen from an administration point of view

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Introduction

Many Universities are in or has been in the process of analyzing possibilities for making an educational change toward an educational model that represent the modern collaborative and communications society which we experience today better than traditional teaching, and which better reflect the students and society's demands and needs which focus on technical knowledge as well as on personal skills and abilities - the so-called life-long learning abilities.

One of the models to fulfil the above-mentioned needs is the so-called POPBL Model, which is an acronym for Project Organized and Problem Based Learning carried out in teams.

Once then, when a decision is made to change the educational model towards POPBL, the executives, academic directors, teachers and the supporting staff face the challenge of actually plan it, implement it, make it work and create a steady state situation.

The author is in this paper making reflections on the process of implementing a POPBL teaching model seen from the administrative point of view.

Steps in the change process

Trice and Beyer [1] has been investigating the process of implementations in organizations. *"Every stage of any change process carries the hazard of omission, abandonment, or return to an earlier stage"*. Based on studies of changes in American organizations, they point out that *"Initial acceptance and enthusiasm are insufficient to carry change forward"* [1].

They operate with a simplified model that consists of three steps:

- Adoption
- Implementation
- Institutionalization

The adoption is related to the decision process on making a change. The implementation covers the activities necessary to be able to make the desired changes. Institutionalization is when the change process is in a lasting steady state and where the *culture* at the University is actually changed.

With reference to Figure 1, the vision, the action plan, the criteria of success and communication is related to the adoption. The staff training is related to implementation. The institutionalization can – hopefully - be identified after a successful implementation and after the cultural changes has been rooted in the organization. However, it can take years to realize whether the institutionalization has actually occurred, or if the University *de facto* has returned into old routines and behaviours even though claiming having fully implemented the new educational model. The evaluation plan is an instrument to measure not only the short terms changes, but it can also be put into service to identify if the changes have lead to an institutionalization.

Setting the scene

In Figure 1 - the *planning-loop circle* - shows the different activities that as a minimum must be included in order to have a successful adoption and implementation. The author is in the following making comments to each of the topics identified in the illustration.

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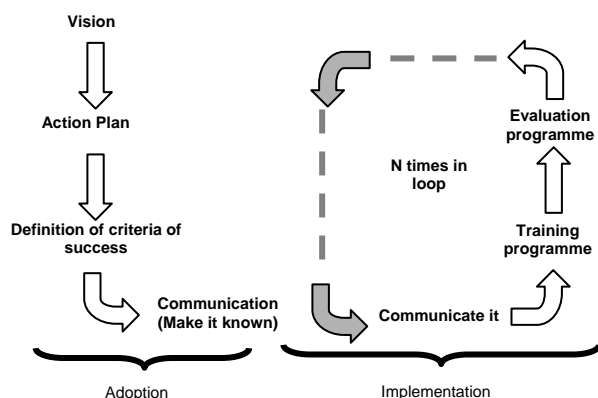


Figure 1: A planning-loop circle for a change process.

As shown at the top left in Figure 1, the first thing executives have to do is to initiate a discussion leading to the formulation of a *Vision*. A vision that create a desired image on how they wish the University to appear and act when the model is fully implemented and a steady state is reached – the institutionalization.

The decision on making an educational change has - in the author's opinion [2] - to be a top down decision. Hopefully it will be a decision that is based on discussions with and amongst the University staff to generate consensus, as a top down decision lacking support of the majority of the staff members is unlikely to be successful.

Equally important is to develop an *activity plan*. An activity plan that pictures the overall strategy of the process of changes and identifies the different elements in the process and *when* the different levels in the organization is supposed to participate.

This leads to a formulation of the *criteria of success*. The University must create criteria of success as reference point for the staff that is to participate in the process and who is investing many efforts on training, development and engagement. They need to know what is expected of them and how they can achieve success in their personal process of change. The criteria of success must also define the goals to be considered a demarcation to distinguish whether the change process and the output of it has been successful according to the vision or not.

Then follows a critical phase that the author unfortunately often has seen neglected: the *communication* of the vision, criteria of success and the action plan. If these are not made public and openly discussed with and amongst the staff, it fails to serve the purpose of encouraging the staff to work toward a common goal and - at a personal level - make it possible to plan when and how to participate in the process.

The training of the academic directors and teachers is a necessity for a successful implementation. An example of a possible *training plan* is shown in Figure 2. In this setup, the organization is divided into four groups: executives, academic directors, teachers and supporting staff. Combining Figure 1 and Figure 2 gives an idea of how to create the main structure for a complete training programme including the adoption of

the ideas and for the implementation in the organization. It also illustrates that the different groupings does not need the same training activity, and certainly not the same content in the training programme setups.

Finally, the organization needs to set up an *evaluation plan* in order to be able to evaluate whether the objectives of the vision and criteria of success have been achieved. In addition, it will be useful to evaluate the training programme to measure if the training has been utilized by the trainees and to get an idea of possible changes needed for the next cohort of trainees.

Levels of POPBL

When talking about PBL there is a wide variety of interpretations on what PBL actually means when moving away from the theoretical world to the practical world and actual implementing it. Because of this, educational developers and Institutions often find it necessary to add an additional letter or letters to express the variety of PBL they are working by under given different objectives, possibilities, conditions and resources. In order to be able to discuss and work toward the formulated goals, we need to have a common understanding of to which level of PBL-use the organizations is aiming and which are the consequences.

In workshops for training Executives, Academic Directors or Teachers, the author has been working with a three-level model to be able to discuss types of change. The levels are:

1. The Personal Level
2. The System or Group Level
3. The Institutional Level

A more detailed description on these three levels and the deeper implications can be found in [2]. A summary is needed here though.

At the *personal level* – even though the course *is* changed - the “normal” practice is carried on. It is characterized by being a single performance by the teacher involved, and the examination form is not changed. It is a private situation.

The next level in this model is the so-called *system or group level*. At this level changes in the objectives and in teaching and learning methods is likely to be seen. It will also be likely to see minor changes in the way examinations are carried out. Changes in the organization will be noticeable, and at this level, some Institutions will begin to mechanize the approach for the new educational model.

The final level - *the institutional level* – is when the Institution has changed totally into the new educational model. This level is characterized by a total change in culture and the teaching and learning approach. It is further characterized by a high degree of student participation in the planning of the education and of the different programmes. The students are cooperative partners in their project work and personal skills and abilities are naturally embedded in the curriculum and focused upon in the daily teaching and learning environment. The teaching and learning is typically cross-disciplinary or interdisciplinary and it is experience based.

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The training plan

Figure 2 is an example of a possible training programme setup, which also serves as an example of an action plan to be presented for the staff during the presentation (communication) of the new educational model.

We suppose in the following that the executives have made the activities necessary for the adoption phase and we further suppose that the plan is widely adopted by the staff.

The training plan is initiated by a start-up seminar, which includes a general presentation of the total structure of the plan for all staff at the University and a workshop for executives. During the workshop, the executives will gain hands-on experience with some of the problems related to the new educational model with special focus on managerial and executive problems, and they will be working on developing a vision for the institution as the platform for the rest of the planning tasks. They will in this process gain a deeper understanding for the work that is to be carried out by their staff and as such be active supporters in the change process as they are familiar with the most common and general problems to be dealt with by the academic directors, teachers and supporting staffs later on in the process.

When the executives work is ended, the result is handed over as the platform for the academic director's work. They too is foreseen to have a hands-on training, but the focus is in this event more on developing a main structure of the education and to develop a curriculum that comply with the objectives stated in the visions.

The outcome of the academic directors' workshop is a detailed master plan that forms the bases from which the teachers can work.

In the author's experience it is a good idea to plan the academic directors workshop as a "*pre-planning of a change workshop*", as the participants will be able to deal with *all* the problems related to POPBL-planning in a controlled and guided environment, and the outcome can be considered as training for the actual planning activity afterwards. The benefits of this approach is that the participants have been involved with all the elements in the process and have been discussing pros and cons of any decision they have to make. They have further developed and tested different possible models for the change and discussing those with colleagues. These experiences are transferable to the actual planning, and hopefully there will be no unidentified – although maybe not yet solved – problems after the training through a pre-planning workshop. On top of that, it is a splendid activity to create a change culture and to create a common understanding of the objectives and the complete work ahead.

On the question on how to prepare the teachers, it is the author's experience that a major training of teachers before they start acting by a new educational model is to be avoided. Instead, the training should be executed by training sessions along the way.

Teachers need a basic initial training on what they are venturing into. A training session of a few days a couple of week before they start acting with the students followed by a main workshop typical three to four weeks in the process is the author's experience the best way to initiate the new teachers.

If the teachers are trained very intensive before they start, the training will lack of a point of reference they can relate their training to. By giving them basic information on what is expected of them and on how they can initiate the new teaching and learning model in their first steps by the new model, they will be able to *start* the process. Then after a few weeks, the

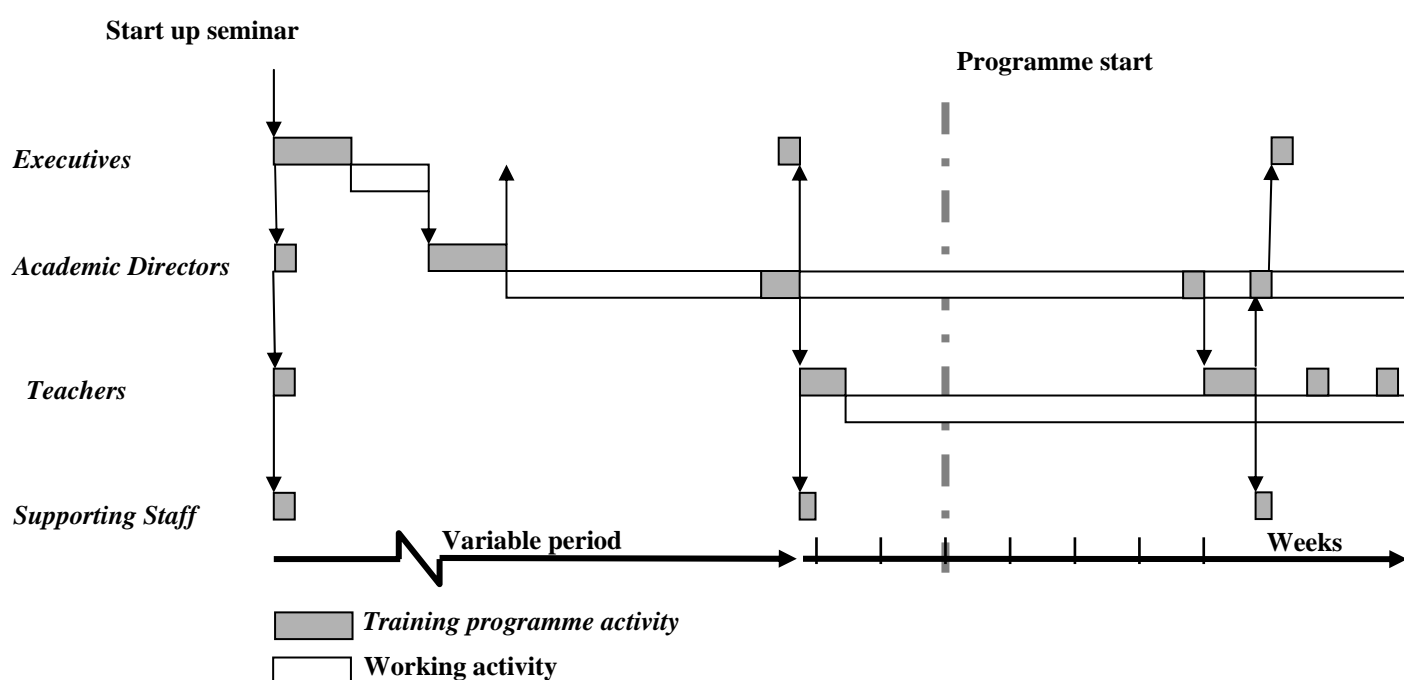


Figure 2: An example of an action and training plan

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training is planned to be more thorough, and since they now have gained quite a lot of experience at this point already and have many practical and personal experienced problems to solve, they are very keen on knowing more. At this point they are simply better *motivated* to get information and to discuss their experience with colleagues in the same situation and with their trainers. The training will be *relevant* to them. It is not theory anymore - it is a part of their daily life!

To follow this line of thinking for the staff training programmes, the training must be followed by establishing formal pedagogical meetings with teachers as they go along in the process foreseen to make room for *exchange of experiences* and to have additional *theoretical* information when they actually need it.

Parallel to the teacher-training programme, it is important not to neglect the less formal training of the supporting staff. They need to get information as they too are getting more and more experience and have questions to be answered as well as the teachers. They too need to be supported in the process best possible. They need information on the progress and feedback on their support and to get further background information as well as they go along. This will further make it easier to create a co-operational environment between teachers and supporting staff in the students' project work, where the supporting staffs are an important group of people.

In Figure 2, the arrows pointing upwards are very important to spread the information and experience "upwards" so the executives can follow the process and the academic directors can adjust their planning as the process is running and experience is fed back to them. The sessions with the academic directors has to be formalised as well as the other training activities.

The evaluation plan

It is not within the limits of this article to describe a detailed evaluation plan but in general, the evaluation plan needs to be based on the formulated goals to identify to which degree they are fulfilled. And in addition to this, the evaluation plan also have to include how to measure the new system towards the old system, as for sure that will be one of the questions asked during and after the change and will be central in the judgement of the new system from the inside as well as from outside.

It is however not easy to evaluate a POPBL educational model directly against a traditional education system, as the objectives, goals, methods and means are different in the two situations. However, as examples of personal experienced evaluation thresholds the author can give a few examples:

- The rate of pass/non-pass or level of grades must not be less than in the "old" system.
- The students evaluations must not be less satisfactory as under the old system (be prepared though to get more complaints in the first period of the change process! – it is to be expected.)
- The evaluation of teachers' performance must not be less than under the old system.

- The dropout rate must exceed than under the old system.
- The number of students enrolling the programme must not be less than under the old system and not relatively less than by other similar institutions.
- The students' rate of employment must not be less than under the old system.
- The alumni must get jobs in a rate not less than under the old system and in comparison with other universities.
- The alumni must not loose jobs more often compared with alumni from the old system and alumni from other Universities.
- The satisfaction level from employers must not decrease compared with the old system.
- Etc.

These are just a few examples and more examples with a different approach can be formulated.

For those who would like to look further into material on evaluations of a POPBL based education, The Aalborg Experiment [3] is giving detailed information supported by data material.

A resent survey conducted by The Danish Engineering Society's Newspaper Ingeniøren – "The Engineer" - in Marts 2004, have made a comparison between Aalborg University (AAU) and The Danish Technical University (DTU), both in Denmark, and of which AAU is considered a POPBL teaching University and DTU is considered a traditional teaching University. On the question on how the employers evaluated the students' qualification the response for "good" and "very good" judgements on "Project and staff management" was AAU: app. 40% and DTU app. 8%. On the question "Engineering competences and technical competences", the answers were AAU app. 85% and DTU app. 84%. This shows that on the technical and engineering issues, the two educational systems are equal, but in addition to the technical competences, the AAU programme clearly generates additional competences developed mainly because of the POPBL approach. [4]

Combining the elements

It would be tempting to begin to combine the information given in this article to give a complete – ready to follow – plan, but it will not be possible, as the conditions under which a such plan would have to serve will be so varied that it could create confusion rather than to be of any help in a process of change.

Instead, the author is recommending interested institutions to use this article and some of the references as a tool to begin analysis and considerations for a change towards a new educational model.

As an example on how a POPBL education can be structured, the author has in "From Pupil to Student" [5] made a detailed description on the structure and content of the first year at Aalborg University, Denmark. In this article it is also possible to see how the training in and development of personal skills and abilities as well as contextual issues is integrated as a part of the education programme.

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Closing remarks

The development of the models is widely based on the authors experience gained from conducting workshops and from facilitating change processes at Institutions, and thus tested in practice. This does not mean however, that the models can be transferred directly to other Institutions, as they may have other conditions that need to be taken into consideration when planning a change process. In general, the philosophy of POPBL and the main ideas on how to structure a change process in praxis can be transferred to almost any institutions.

It is the authors hope, that some of the topics discussed in this article may serve as inspiration and as a possible help to the strategic reflections at Institutions considering making a change in their educational model into a POPBL based teaching and learning model.

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Research:

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